

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

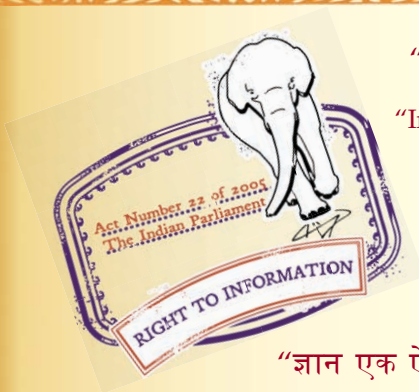
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 1448-66 (1969): Methods of test for petroleum and its products, Part 66: Flash Point (open) and fire point by pensky-martens apparatus [PCD 1: Methods of Measurement and Test for Petroleum, Petroleum Products and Lubricants]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

METHODS OF TEST FOR PETROLEUM AND ITS PRODUCTS

[P : 66]

FLASH POINT (OPEN) AND FIRE POINT BY PENSKY-MARTENS APPARATUS

(Third Reprint APRIL 1988)

UDC 665.6.7 : 543.873

Adapted, with permission, from the Institute of Petroleum Standard No. IP 35/63

1. SCOPE

1.1 This method is intended for the determination of the open flash point and the fire point of petroleum products except when the Cleveland open cup is specified.

2. OUTLINE OF THE METHOD

2.1 The sample is placed in the cup of the Pensky-Martens apparatus (open) and heated at specified rate. A small test flame is directed on the cup. The flash point is taken as the lowest temperature at which the test flame causes the vapour above the sample to give a momentary distinct flash and the fire point is taken as the temperature at which the oil ignites and continues to burn for at least 5 seconds.

3. APPARATUS

3.1 **Pensky-Martens Tester** — conforming to the requirements prescribed in IS : 1448 [P : 21] - 1960*, with the modifications described in 3.1.1. The thermometer prescribed in 3.1.2 shall be used. The apparatus shall bear a test certificate from the National Physical Laboratory, New Delhi or any other institution approved by ISI.

*Flash point (closed) by Pensky-Martens apparatus. (Since revised).

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3.1.1 The cover of the cup shall be replaced by a clip which encircles the upper rim of the cup and carries the thermometer and test-flame. The tube carrying the thermometer shall have its centre on a radius at approximately 90° to the radius passing through the point of attachment of the test flame, and shall be of such a height that when the thermometer is in position its bulb shall be in the vertical axis of the cup and 13 mm below the filling line. The test flame shall be fixed at the vertical axis of the cup and at a level with the upper edge of the cup.

3.1.2 Thermometer — shall conform to the following requirements:

	<i>Low Range*</i>	<i>High Range*</i>
Range	-7°C to $+110^\circ\text{C}$	90°C to 370°C
Graduation	0.5 deg	2 deg
Immersion	57 mm	57 mm
Overall length	280 ± 10 mm	280 ± 10 mm
Stem diameter	5.5 to 8.0 mm	5.5 to 8.0 mm
Bulb shape	Cylindrical	Cylindrical
Bulb length	9 to 13 mm	10 mm, <i>Max</i>
Bulb diameter	Not less than 5.5 mm and not greater than stem	Not less than 5.5 mm and not greater than stem
Length of graduated portion	143 to 177 mm	143 to 177 mm
Distance, bottom of bulb to lowest graduation	75 to 90 mm	75 to 90 mm
Longer lines at each	1 deg and 5 deg	10 deg and 20 deg
Figured at each	5 deg	20 deg
Expansion chamber	Required	Required
Top finish	Ring or button	Ring or button
Scale error not to exceed	± 0.5 deg	{ Up to $260^\circ\text{C} \pm 1$ deg Above $260^\circ\text{C} \pm 2$ deg

4. PROCEDURE

4.0 The test shall be made in a room or compartment, free from draughts and darkened sufficiently for the flash to be readily discernible.

*Thermometers with the Institute of Petroleum designation IP 15C and 16C respectively conform to the requirements of low range and high range thermometers.

4.1 Thoroughly clean and dry all parts of the cup and its accessories before starting the test. Take particular care to remove the traces of any solvent used to clean the apparatus.

4.2 Fill the cup with the sample to be tested, up to the level indicated by the filling mark.

4.3 Place the clip carrying the thermometer and test flame on the cup and set the latter in the stove. Take care that the locating devices are properly engaged. Insert the thermometer; if it is known that the oil will flash above 105°C, use the High Range Thermometer, otherwise it is preferable to start with the Low Range Thermometer and change if a temperature of 105° to 110°C is reached.

4.4 Light the test flame and adjust it so that it is of the size of a bead 4 mm in diameter.

4.5 Apply heat at such a rate that the temperature recorded by the thermometer increases not less than 5 deg nor more than 6 deg per minute and observe the surface of the oil carefully.

4.6 Flash Point (Open) — Take the open flash point as the temperature when a flash first appears at any point on the surface of the oil.

4.7 Fire Point — Continue the heating until the oil ignites and continues to burn for at least 5 seconds. Record the temperature of the oil when this occurs as the fire point.

5. REPORTING

5.1 Report the result as PM Open Flash or Fire Point, IS : 1448 [P : 66] as appropriate.

6. PRECISION

6.1 Results of duplicate tests shall not differ by more than the following amounts:

<i>Determination</i>	<i>Repeatability</i>	<i>Reproducibility</i>
Flash point (open)	8 deg	12 deg
Fire point	8 deg	14 deg